APPENDIX A: FINAL RULES

Parts 2 and 90 of Title 47 of the Code of Federal Regulations are amended as follows:

I. PART 2 – FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Section 2.103 is amended by revising paragraph (b) to read as follows:

* * * * *

(b) Government stations may be authorized to use channels in the 764-776 MHz, 794-806 MHz and 4940-4990 MHz public safety bands with non-Government entities if the Commission finds such use necessary; where:

* * * * *

3. Section 2.1091 is amended by revising paragraph (c) as follows:

* * * * *

(c) Mobile devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications Services, the General Wireless Communications Service, the Wireless Communications Service, the Maritime Services, the 4.9 GHz Band Service and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 26 of this chapter, part 27 of this chapter, part 80 of this chapter (ship earth stations devices only) and part 90 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if they operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts or more. Unlicensed personal communications service devices, unlicensed millimeter wave devices and unlicensed NII devices authorized under § 15.253, § 15.255, and subparts D and E of part 15 of this chapter are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their ERP is 3 watts or more or if they meet the definition of a portable device as specified in § 2.1093 (b) requiring evaluation under the provisions of that section. All other mobile and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in §§ 1.1307(c) and 1.1307(d) of this chapter. Applications for equipment authorization of mobile and unlicensed transmitting devices subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in paragraph (d) of this section as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request.

* * * * *

4. Section 2.1093 is amended by revising paragraph (c) as follows:

* * * * *

(c) Portable devices that operate in the Cellular Radiotelephone Service, the Personal Communications Service (PCS), the Satellite Communications Services, the General Wireless Communications Service, the Wireless Communications Service, the Maritime Services, the Specialized Mobile Radio Service, the 4.9 GHz Band Service, the Wireless Medical Telemetry Service (WMTS) and the Medical Implant Communications Service (MICS), authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 26 of this chapter, part 27 of this chapter, part 80 of this chapter (ship earth station devices only), part 90 of this chapter, subparts H and I of part 95, and unlicensed personal communication service, unlicensed NII devices and millimeter wave devices authorized under subparts D and E, § 15.253 and § 15.255 of part 15 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use. All other portable transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in §§ 1.1307(c) and 1.1307(d) of this chapter. Applications for equipment authorization of portable transmitting devices subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in paragraph (d) of this section as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request.

* * * * *

II. PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

5. The authority citation for Part 90 continues to read as follows:

AUTHORITY: Sections 4(i), 11, 303(g), 303(r) and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), 332(c)(7).

6. Section 90.20 is amended by inserting the following in the table at paragraph (c)(3) before the entry referencing the 10,550 to 10,680 band, and adding a new paragraph (d)(85), to read as follows:

* * * * *

(c) * * * * *

(3) *Frequencies.* * * *

Frequency or band	Class of station(s)	Limitations	Coordinator
* * * * *	* * * * *	* * * * *	* * * * *
4940 to 4990	Fixed, base or mobile	85	* * * * *
* * * * *	* * * * *	* * * * *	

* * * * *

(d) * * * * *

(85) Subpart Y of this part contains rules for assignment of frequencies in the 4940-4990 MHz band.

* * * * *

7. Section 90.137 is amended by adding a new paragraph (c) to read as follows:

§90.137 Applications for operation at temporary locations.

* * * * *

(c) The provisions of this section do not apply to the 4940-4990 MHz band.

* * * * *

8. Section 90.155 is amended by revising paragraph (a) to read as follows:

§90.155 Time in which a station must be placed in operation.

(a) All stations authorized under this part, except as provided in §§ 90.629, 90.631(f), 90.665, 90.685 and 90.1209 must be placed in operation within twelve (12) months from the date of grant or the authorization cancels automatically and must be returned to the Commission.

* * * * *

9. Section 90.175 is amended by revising paragraph (i) and adding a new paragraph (j)(17) to read as follows:

§ 90.175 Frequency coordination requirements.

* * * * *

(i) Applications for facilities near the Canadian border north of line A or east of line C in Alaska may require coordination with the Canadian government. See §1.928 of this Chapter.

(j) * * * * *

(17) Applications for frequencies in the 4940-4990 MHz band.

* * * * *

10. Section 90.205 is amended by redesignating paragraphs (o) through (q) as (p), (q), and (r) respectively, and adding a new paragraph (o) to read as follows:

§ 90.205 Power and antenna height limits.

* * * * *

(o) *4940-4990 MHz.* Limitations on power are specified in § 90.1215 of this part.

* * * * *

11. Section 90.210 is amended by adding an entry to the table in the undesignated paragraph, by redesignating paragraphs (l) and (m) and by adding a new paragraph (l) to read as follows:

* * * * *

§ 90.210 Emission masks.

Frequency band (MHz)	Mask for equipment with audio low pass filter	Mask for equipment without audio low pass filter
* * * * *	* * * * *	* * * * *
4940-4990 MHz	L.....	L
* * * * *	* * * * *	* * * * *

* * * * *

(l) *Emission Mask L.* For transmitters operating in the 4940-4990 MHz frequency band, any emission must be attenuated below the output power of the transmitter as follows:

(1) On any frequency removed from the assigned frequency by more than 40 percent but less than 75 percent of the authorized bandwidth: At least 28 dB.

(2) On any frequency removed from the assigned frequency by more than 75 percent but less than 125 percent of the authorized bandwidth: At least 37 dB.

(3) On any frequency removed from the assigned frequency by more than 125 percent but less than 150 percent of the authorized bandwidth: At least 41 dB.

(4) On any frequency removed from the assigned frequency by more than 150 percent of the authorized bandwidth: At least 53 dB.

(5) On any frequency outside the channel bandwidth, the power spectral density of the device must meet the attenuation in the mask above or -53 dBm/MHz, whichever is the lesser attenuation.

(6) The zero dB reference is measured relative to the highest average power of the fundamental emission measured across the designated channel bandwidth using a resolution bandwidth of at least one percent of the occupied bandwidth of the fundamental emission. Emission levels are also based on the use of measurement instrumentation employing a resolution bandwidth of at least one percent of the occupied bandwidth.

* * * * *

12. A new Subpart Y is added to read as follows:

Subpart Y – Regulations Governing Licensing and Use of Frequencies in the 4940-4990 MHz Band.

§ 90.1201 Scope.

This subpart sets out the regulations governing use of the 4940-4990 MHz (4.9 GHz) band. It includes eligibility requirements, and specific operational and technical standards for stations licensed in this band. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in this part; however, in case of conflict, the provisions of this subpart shall govern with respect to licensing and operation in this band.

§ 90.1203 Eligibility.

(a) Entities providing public safety services as defined under section 90.523 of this part are eligible to hold a Commission license for systems operating in the 4940-4990 MHz band. All of the requirements and conditions set forth in that section also govern authorizations in the 4940-4990 MHz band.

(b) 4.9 GHz band licensees may enter into sharing agreements or other arrangements for use of the spectrum with entities that do not meet these eligibility requirements. However, all applications in the band are limited to operations in support of public safety.

§ 90.1205 Permissible operations.

(a) Unattended and continuous operation is permitted.

(b) Voice, data and video operations are permitted.

(c) Aeronautical mobile operations are prohibited.

§ 90.1207 Licensing.

(a) A 4940-4990 MHz band license gives the licensee authority to operate on any authorized channel in this band within its licensed area of operation. See § 90.1213 of this subpart. A 4940-4990 MHz band license will be issued for the geographic area encompassing the legal jurisdiction of the licensee or, in case of a nongovernmental organization, the legal jurisdiction of the state or local governmental entity supporting the nongovernmental organization.

(b) Subject to § 90.1209 of this subpart, a 4940-4990 MHz band license gives the licensee authority to construct and operate any number of base stations anywhere within the area authorized by the license, except as follows:

(1) A station is required to be individually licensed if:
(i) International agreements require coordination;
(ii) Submission of an environmental assessment is required under § 1.1307 of this chapter; or
(iii) The station would affect the radio quiet zones under § 1.924 of this chapter.
(2) Any antenna structure that requires notification to the Federal Aviation Administration (FAA) must be registered with the Commission prior to construction under § 17.4 of this Chapter.

(c) A 4940-4990 MHz band license gives the licensee authority to operate mobile units (including portable and handheld units) and operate temporary (1 year or less) fixed stations anywhere within the area authorized by the license. Such licensees may operate mobile units and/or temporary fixed stations outside their authorized area to assist public safety operations with the permission of the jurisdiction in which the radio station is to be operated. Temporary fixed stations are subject to the requirements of paragraph (b) of this section.

(d) A 4940-4990 MHz band license does not give the licensee authority to operate permanent

fixed point-to-point stations. Licensees choosing to operate such fixed stations must license them individually on a site-by-site basis. Such fixed operation will be authorized only on a secondary, non-interference basis to base, mobile and temporary fixed operations.

§ 90.1209 Policies governing the use of the 4940-4990 MHz band.

(a) Channels in this band are available on a shared basis only and will not be assigned for the exclusive use of any licensee.

(b) All licensees shall cooperate in the selection and use of channels in order to reduce interference and make the most effective use of the authorized facilities. Licensees of stations suffering or causing harmful interference are expected to cooperate and resolve this problem by mutually satisfactory arrangements. If licensees are unable to do so, the Commission may impose restrictions including specifying the transmitter power, antenna height, or area or hours of operation of the stations concerned. Further, the Commission may prohibit the use of any 4.9 GHz channel under a system license at a given geographical location when, in the judgment of the Commission, its use in that location is not in the public interest.

(c) Licensees will make every practical effort to protect radio astronomy operations as specified in Section 2.106, footnote US311.

(d) There is no time limit for which base and temporary fixed stations authorized under a 4940-4990 MHz band license must be placed in operation. Fixed point-to-point stations which are licensed on a site-by-site basis must be placed in operation within 18 months of the grant date or the authorization for that station cancels automatically.

§ 90.1211 Regional Plan.

(a) To facilitate the shared use of the 4.9 GHz band, each region may submit a plan on guidelines to be used for sharing the spectrum within the region. Any such plan must be submitted to the Commission within 12 months of the effective date of the rules.

(b) Such plans must incorporate the following common elements:

(1) Identification of the document as a plan for sharing the 4.9 GHz band with the region specified along with the names, business addresses, business telephone numbers and organizational affiliations of the chairperson(s) and all members of the planning committee.

(2) A summary of the major elements of the plan and an explanation of how all eligible entities within the region were given an opportunity to participate in the planning process and to have their positions heard and considered fairly.

(3) An explanation of how the plan was coordinated with adjacent regions.

(4) A description of the coordination procedures for both temporary fixed and mobile operations, including but not limited to, mechanisms for incident management protocols, interference avoidance and interoperability.

(c) Regional plans may be modified by submitting a written request, signed by the regional planning committee, to the Chief, Wireless Telecommunications Bureau. The request must contain the full text of the modification, and a certification that all eligible entities had a chance to participate in discussions concerning the modification and that any changes have been coordinated with adjacent regions.

§ 90.1213 Band plan.

The following channel center frequencies are permitted to be aggregated for channel bandwidths of 5, 10, 15 or 20 MHz. Channel numbers 1-5 and 15-19 are 1 MHz channels and channels numbers 6-14 are 5 MHz channels.

Center Frequency (MHz)	Channel Nos.
4940.5	1
4941.5	2
4942.5	3
4943.5	4
4944.5	5
4947.5	6
4952.5	7
4957.5	8
4962.5	9
4967.5	10
4972.5	11
4977.5	12
4982.5	13
4985.5	14
4986.5	15
4987.5	16
4988.5	17
4989.5	18

§ 90.1215 Power limits.

The transmitting power of stations operating in the 4940-4990 MHz band must not exceed the maximum limits in this section.

(a) The peak transmit power should not exceed:

Channel Bandwidth (MHz)	Peak Transmitter Power (dBm)
1	20
5	27
10	30
15	31.8
20	33

Devices are also limited to a peak power spectral density of 20 dBm per 1 MHz. Devices using channel bandwidths other than those listed above are permitted; however, they are limited to a peak power spectral density of 20 dBm/MHz. If transmitting antennas of directional gain greater than 9 dBi are used, both the peak transmit power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi. However, point-to-point or point-to-multipoint operation (both fixed and temporary-fixed rapid deployment) may employ transmitting antennas with directional gain up to 26 dBi without any corresponding reduction in the transmitter power or spectral density. Corresponding reduction in the peak transmit power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

(b) The peak transmit power is measured as a conducted emission over any interval of continuous transmission calibrated in terms of an rms-equivalent voltage. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement conforming to the definitions in this paragraph for the emission in question.

(c) The peak power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A resolution bandwidth less than the measurement bandwidth can be used, provided that the measured power is integrated to show total power over the measurement bandwidth. If the resolution bandwidth is approximately equal to the measurement bandwidth, and much less than the emission bandwidth of the equipment under test, the measured results shall be corrected to account for any difference between the resolution bandwidth of the test instrument and its actual noise bandwidth.

§ 90.1217 RF Hazards.

Licensees and manufacturers are subject to the radiofrequency radiation exposure requirements specified in § 1.1307(b), § 2.1091 and § 2.1093 of this chapter, as appropriate. Applications for equipment authorization of mobile or portable devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

APPENDIX B: FINAL REGULATORY FLEXIBILITY ANALYSIS

1. As required by the Regulatory Flexibility Act (RFA),[179] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Further Notice of Proposed Rule Making* (*Further Notice*).[180] The Commission sought written public comment on the proposals in the *Further Notice*, including comment on the IRFA. No comments were submitted specifically in response to the IRFA; we nonetheless discuss certain general comments below. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[181]

Need for, and Objectives of, the *Report and Order*:

2. In this *Memorandum Opinion and Order and Third Report and Order* (*Third Report and Order*), we adopt eligibility and service rules for the licensing and operation of fixed and mobile services in the 4.9 GHz band pursuant to the Omnibus Budget Reconciliation Act.[182] These rules provide 4.9 GHz band eligibles with maximum flexibility to employ a variety of new broadband applications such as high-speed digital technologies, wireless local area networks for incident scene management, dispatch operations and vehicular/personal communications. Additionally, public safety entities will be permitted to employ "hot spot" operations, temporary fixed links, and traditional backbone microwave operations in the band. The rules we adopt today ensure that public safety entities will enjoy the greatest possibility of unhindered use of this spectrum while fostering partnership opportunities with critical infrastructure and commercial entities and will fulfill our obligations as mandated by Congress to assign this spectrum for non-Government use.

Summary of Significant Issues Raised by Public Comments in Response to the IRFA:

3. No comments were submitted specifically in response to the IRFA. In general comments, however, some commenters expressed concern with our proposals to limit eligibility in the 4.9 GHz band to traditional public safety entities as defined by section 337(f) of the Communications Act.[183] For example, the Association of American Railroads urges us to adopt a definition of public safety services, pursuant to section 309(j)(2) of the Communications Act, that would allow critical infrastructure entities (CIEs) such as railroads and utility companies to acquire licenses in the 4.9 GHz band.[184] Although under the rules we adopt today, CIEs are not eligible to hold licenses in this band, we have considered the effect of these rule changes on small entities and considered other alternatives. In particular, we note that CIEs will have access to this spectrum through sharing agreements with public

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[179] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § § 601-612, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[180] The 4.9 GHz Band Transferred from Federal Government Use, *Second Report and Order and Further Notice of Proposed Rulemaking*, WT Docket No. 00-32, 17 FCC Rcd 3955, 3993 (Appendix C) (2002).

[181] *See* 5 U.S.C. § 604.

[182] Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, 107 Stat. 312.

[183] *See MO&O and Third R&O*, sec. V(A), *supra*.

[184] Association of American Railroads Comments at 3.

safety licensees. We believe that this item strikes an appropriate balance between competing spectrum needs and expect that our actions will mostly benefit all entities subject to these rule changes, including small entities.

Description and Estimate of the Number of Small Entities To Which the Rules Will Apply:

4. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[185] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[186] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[187] A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[188]

5. Nationwide, as of 1992, there were approximately 275,801 small organizations.[189] "Small governmental jurisdiction" generally means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000."[190] As of 1992, there were approximately 85,006 such jurisdictions in the United States.[191] This number includes 38,978 counties, cities, and towns; of these, 37,566, or ninety-six percent, have populations of fewer than 50,000.[192] The Census Bureau estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (ninety-one percent) are small entities.

6. The rules we adopt today will affect users of public safety radio services. These rules may also affect manufacturers of radio communications equipment. An analysis of the number of small businesses that may be affected follows. We also note that according to SBA data, there are approximately 4.44 million small businesses nationwide.

7. *Small Businesses Sharing Spectrum with Public Safety Radio Services and Governmental Entities.* As a general matter, Public Safety Radio Services include police, fire, local government, forestry

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[185] 5 U.S.C. § 603(b)(3).

[186] 5 U.S.C. § 601(6).

[187] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[188] 15 U.S.C. § 632.

[189] *1992 Economic Census*, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration).

[190] 5 U.S.C. § 601(5).

[191] U.S. Department of Commerce, Bureau of the Census, 1992 Census of Governments.

[192] *Id.*

conservation, highway maintenance, and emergency medical services.[193] Non-Federal governmental entities, as well as certain private businesses having sharing agreements with governmental entities, are potential licensees for these services in this proceeding. Neither the Commission nor the SBA has developed a definition of small businesses directed specifically toward the public service work at issue. Therefore, the applicable definition of small business is the definition under the SBA rules applicable to Cellular and other Wireless Telecommunications. This provides that a small business is a radiotelephone company employing no more than 1,500 persons.[194]

8. *Equipment Manufacturers*. We anticipate that at least six radio equipment manufacturers will be affected by our decisions in this proceeding. According to SBA regulations, a Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing businesses must have 750 or fewer employees in order to qualify as a small business concern.[195]

Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements:

9. Applicants for licenses to provide terrestrial fixed and mobile services in the 4.9 GHz band must submit license applications through the Universal Licensing System using FCC Form 601, and follow the service rules at 47 C.F.R. Part 90.[196]

Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered:

10. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[197]

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[193] *See* Subparts A and B of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1-90.22. Police licensees include 26,608 licensees that serve state, county, and municipal enforcement through telephony (voice), telegraphy (code), and teletype and facsimile (printed material). Fire licensees include 22,677 licensees comprised of private volunteer or professional fire companies, as well as units under governmental control. Public Safety Radio Pool licensees also include 40,512 licensees that are state, county, or municipal entities that use radio for official purposes. There are also 7,325 forestry service licensees comprised of licensees from state departments of conservation and private forest organizations that set up communications networks among fire lookout towers and ground crews. The 9,480 state and local governments are highway maintenance licensees that provide emergency and routine communications to aid other public safety services to keep main roads safe for vehicular traffic. Emergency medical licensees (1,460) use these channels for emergency medical service communications related to the delivery of emergency medical treatment. Another 19,478 licensees include medical services, rescue organizations, veterinarians, handicapped persons, disaster relief organizations, school buses, beach patrols, establishments in isolated areas, communications standby facilities, and emergency repair of public communications facilities.

[194] 13 C.F.R. 121.201, NAICS code 513322.

[195] 13 C.F.R. § 121.201, NAICS code 334220.

[196] 47 C.F.R. § 1.913(a)(1); *see MO&O and Third R&O*, Appendix A, *supra*.

[197] *See* 5 U.S.C. § 603(c).

11. Regarding our decision to limit eligibility in the 4.9 GHz band to traditional public safety entities, *see* paras. 16-21, *supra*, we realize that certain commercial and critical infrastructure small business entities that might have wished to operate in this newly available spectrum may be adversely affected, in that they will not be able to obtain a license to operate in this band. This concern is mitigated, however, by the fact that we will allow public safety entities to enter into sharing agreements with entities performing operations in support of public safety. Moreover, we believe that in this instance, there is a compelling need for spectrum dedicated to public safety operations and that our approach here will ensure that such operations are not hampered by excessive frequency congestion. An alternative would be to expand the definition of public safety eligibles and/or to allow commercial use of the subject band; however, this would undermine our intention to promote public safety service in this band.

12. Regarding our decision to license the 4.9 GHz band via a jurisdictional licensing scheme, *see* paras. 27-31, *supra*, we do not believe that there will be any significant adverse impact on small entities. In fact, this approach will give public safety entities which are considered small entities under the RFA the ability to obtain licenses for the entire 50 MHz of spectrum in this band and to choose the types of operations that best suit their individual needs. An alternative would be to license this spectrum on a state-wide basis or to require the use of some type of formal frequency coordination committee. We do not believe, however, that frequency coordination would benefit licensees in all parts of the country, and state-wide licenses would not give smaller, local jurisdictions control over what types of operations might best suit their individual needs.

13. Regarding our decision to allow both fixed and mobile use, as well as point-to-point microwave operations on a secondary basis in the 4.9 GHz band, *see* paras. 33-36, *supra*, we do not anticipate any adverse affect on small entities. Instead, our approach here should benefit public safety entities by allowing greater flexibility in meeting each licensee's particular operational needs.

14. Regarding our decision to implement a frequency utilization plan in the 4.9 GHz band consisting of one and five MHz channels, *see* paras. 38-42, *supra*, we do not anticipate any adverse affect on small entities. In the event that public safety entities determine that greater channel bandwidths are needed, licensees may aggregate their channels.

15. Regarding our decision declining to require use of a particular technology for equipment in the 4.9 GHz band, *see* paras. 48-49, *supra*, we do not anticipate any adverse affect on small entities. We believe that the imposition of specific technology could impede the utilization of emerging technologies in the band and that greater flexibility is consequently warranted.

16. Our decisions regarding fixed and mobile technical standards, *see* paras. 56-57, *supra*, should not result in any adverse impact to small entities. Alternatively, we could have adopted higher or lower power and emissions limits, but we believe that the rules we adopt today strike an appropriate balance between offering licensees maximum flexibility in their utilization of the 4.9 GHz band and minimizing the risk of harmful interference.

Report to Congress:

The Commission will send a copy of this *MO&O and Third R&O*, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act.[198] In addition, the Commission will send a copy of this *MO&O and Third R&O*, including this FRFA, to the Chief Counsel for Advocacy of the

[198] *See generally*, 5 U.S.C. § 801 (a)(1)(A).

Small Business Administration. A copy of this *MO&O and Third R&O* and FRFA (or summaries thereof) will also be published in the *Federal Register*.[199]

[199] *See* 5 U.S.C. § 604(b).

APPENDIX C: GEOGRAPHIC AREAS WHERE DEPARTMENT OF DEFENSE COOPERATIVE ENGAGEMENT CAPABILITY (CEC) WILL BE USED FOR TRAINING IN ITS HIGH POWER, FULL BANDWIDTH MODE

CEC TRAINING AREA 1

Training Area 1 supports Atlantic Coast Exercises, and extends inland from, seaward from, and along the low water mark of a portion of the Mid-Atlantic and South-Atlantic coastline, and includes separate areas in Maryland (MD) and Virginia (VA).

INLAND PORTION: The inland portion of Training Area 1 extends westward from the low water mark of the Atlantic Ocean, and includes all of the area contained within the boundaries of the following counties and within the other identified areas in the indicated state:

Delaware: Sussex County
Maryland: Wicomico, Somerset, and Worcester Counties
Virginia: Accomack and Northampton Counties; all of the area east of the eastern most boundaries of Isle of Wight and Southampton Counties (includes the cities of Suffolk, Portsmouth, Chesapeake, Virginia Beach, Norfolk, and others)
North Carolina (NC): Currituck, Camden, Pasquotank, Perquimans, Tyrell, Dare, Hyde, Craven, Pamlico, Jones, Carteret, Onslow, Pender, New Hanover, and Brunswick Counties

Exercises within the above boundaries of the inland portion of Training Area 1 will include aircraft operating at altitudes to 30 thousand feet (kft), mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere in the defined area. Permanent ground based terminals are now located at Wallops Island, VA; Eastville, VA; and Dam Neck Fleet Combat Training Center-Atlantic, VA. Other permanent ground based terminals will be added within the above defined area as required. Other specific sites within the above defined area include, but are not limited to: Norfolk Naval Base, VA; Norfolk Naval Air Station (NAS), VA; Little Creek Naval Amphibious Base, VA; Oceana NAS, VA; Marine Corps Bogue Field, NC; and Cherry Point Marine Corps Air Station (MCAS), NC.

Permanent ground based terminals not within the above defined area operate within the legal boundaries of the Naval Surface Warfare Center at Dahlgren, VA; and the Patuxent River Naval Air Warfare Center, MD. A permanent ground based terminal also operates within a 5 nm radius of Reedville, VA.

SEAWARD PORTION: The seaward portion of Training Area 1 is bounded on the north by the line that extends eastward from the low water mark of the Atlantic Ocean along 38.914055 north decimal degrees of latitude. The western boundary of the seaward portion of Training Area 1 begins at the intersection of the low water mark of the Atlantic Ocean with 38.914055 north decimal degrees of latitude, extends generally southward and southwestward along the low water mark of the Atlantic Ocean to the intersection of the low water mark with 78.660000 west decimal degrees of longitude, and then continues southward along 78.660000 west decimal degrees of longitude. There is no eastern or southern boundary of the seaward portion of Training Area 1. Exercises in the seaward portion of Training Area 1 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC TRAINING AREA 2

Training Area 2 supports Gulf Coast exercises. Training Area 2 extends inland from, seaward from, and along the low water mark of a portion of the Florida (FL), Alabama (AL), and Mississippi (MS) Gulf coastlines, and includes a separate area near Huntsville, AL and a separate area encompassing Pinellas County, FL.

INLAND PORTION: The inland portion of Training Area 2 extends northward from the low water mark of the Gulf of Mexico, and includes all of the areas contained within the boundaries of the following counties in the indicated state:

Florida: Bay, Washington, Holmes, Walton, Okaloosa, Santa Rosa, and Escambia
Alabama: Baldwin and Mobile
Mississippi: George, Pearl River, Stone, Jackson, Harrison, and Hancock

Exercises within the boundaries of the inland portion of Training Area 2 identified above will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area defined above. Permanent ground based terminals will be added within the above defined area as required. Specific sites within the area identified above include, but are not limited to, Pensacola NAS, FL; Eglin Air Force Base (AFB), FL; and Tyndall AFB, FL.

Redstone Arsenal, located in Madison County, AL is included in Training Area 2. Mobile and ground based equipment will be located anywhere within the legal boundaries of Redstone Arsenal. Aircraft operating in the vicinity of Redstone Arsenal will maintain emissions at the lower defined power level and reduced bandwidth.

Pinellas County, FL is included in Training Area 2. Mobile and ground based equipment will be located anywhere within the legal boundaries of Pinellas County. Permanent ground based terminals are now located in the St. Petersburg, FL metropolitan area. Aircraft operating above Pinellas County, FL will maintain emissions at the lower defined power level and reduced bandwidth.

SEAWARD PORTION: The seaward portion of Training Area 2 is bounded on the east by the line that extends southward from the low water mark of the Gulf of Mexico along 85.400000 west decimal degrees of longitude. The northern boundary of the seaward portion of Training Area 2 begins at the intersection of the low water mark of the Gulf of Mexico with 85.400000 west decimal degrees of longitude, extends generally westward along the low water mark of the Gulf of Mexico to the intersection of the low water mark with 89.350000 west decimal degrees of longitude. The seaward portion of Training Area 2 is bounded on the west by the line that extends due southeast from the intersection of low water mark of the Gulf of Mexico with 89.350000 west decimal degrees of longitude. There is no southern boundary of the seaward portion of Training Area 2. Exercises in the seaward portion of Training Area 2 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC TRAINING AREA 3

Training Area 3 supports Pacific Coast Exercises, and extends inland from, seaward from, and along the low water mark of a portion of the California (CA) mid and southern Pacific coastline.

INLAND PORTION: The inland portion of Training Area 3 extends eastward from the low water mark of the Pacific Ocean, and includes all of the land areas contained within the boundaries of Ventura and

Santa Barbara Counties in the state of California.

Exercises within the boundaries of the inland portion of Training Area 3 will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area identified above. Permanent ground based terminals will be added within the area identified above as required. Specific sites within the identified area include, but are not limited to, Vandenberg AFB, CA; Point Magu NAS, CA; and Naval Surface Warfare Center at Port Hueneme, CA.

SEAWARD PORTION: The seaward portion of Training Area 3 is bounded on the north by the line that extends westward from the low water mark of the Pacific Ocean along 34.960000 north decimal degrees of latitude. The eastern boundary of the seaward portion of Training Area 3 begins at the intersection of the low water mark of the Pacific Ocean with 34.960000 north decimal degrees of latitude, extends generally southward and eastward along the low water mark of the Pacific Ocean to the intersection of the low water mark with 119.000000 west decimal degrees of longitude, then continues south along 119.000000 west decimal degrees of longitude. There is no southern or western boundary of the seaward portion of Training Area 3. Exercises in the seaward portion of Training Area 3 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC TRAINING AREA 4

Training Area 4 supports Pacific Coast Exercises, and extends inland from, seaward from, and along the low water mark of a portion of the southern California Pacific coastline.

INLAND PORTION: The inland portion of Training Area 4 extends eastward from the low water mark of the Pacific Ocean, and includes all of the land areas contained within the boundaries of San Diego County in the state of California. Exercises within the boundaries of the inland portion of Training Area 4 will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area identified above. Permanent ground based terminals will be added within the area defined above as required. Specific sites within the area defined above include, but are not limited to, Camp Pendleton Marine Corps Base, CA; Miramar NAS, CA; Coronado Naval Amphibious Base, CA; U.S. Naval Air Station North Island, CA; and at the Naval facilities located on the Point Loma, CA peninsula.

SEAWARD PORTION: The seaward portion of Training Area 4 is bounded on the north by the line that extends westward from the low water mark of the Pacific Ocean along 33.450000 north decimal degrees of latitude. The eastern boundary of the seaward portion of Training Area 4 begins at the intersection of the low water mark of the Pacific Ocean with 33.450000 north decimal degrees of latitude, extends generally southward and eastward along the low water mark of the Pacific Ocean to the intersection of the low water mark with 32.600000 north decimal degrees of latitude. The seaward portion of Training Area 4 is bounded on the south by the line that extends westward from the low water mark of the Pacific Ocean along 32.600000 north decimal degrees of latitude. There is no western boundary of the seaward portion of Training Area 4. Exercises in the seaward portion of Training Area 4 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC TRAINING AREA 5

Training Area 5 includes all areas within the boundaries of the White Sands Missile Range, New Mexico and the Fort Bliss Military Reservation, Texas and New Mexico, to support the Joint Chiefs of Staff Roving Sands Exercise. The exercises will include aircraft flying at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. The assets can be positioned anywhere within the identified areas.

CEC TRAINING AREA 6

Training Area 6 includes the China Lake Naval Weapons Center, CA; Fort Irwin Military Reservation, CA; and Twentynine Palms Marine Corps Base, CA. The exercises will include aircraft flying at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. The assets can be positioned anywhere within the identified areas.

CEC TRAINING AREA 7

Training Area 7 supports Pacific training exercises. Training Area 7 includes all of the state of Hawaii and the Pacific Ocean waters surrounding the islands of Hawaii.

Exercises within the land boundaries of Training Area 7 will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area. Permanent ground based terminals will be added as required. Specific sites within Training Area 7 include, but are not limited to, the Pacific Missile Range Facility on the Island of Kauai.

Exercises in the Pacific Ocean waters will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere. The waters of the Pacific Missile Range Facility are included.

CEC TRAINING AREA 8

Training Area 8 supports Atlantic Ocean and Caribbean Ocean training exercises. The area includes all of Puerto Rico; St. Thomas, Virgin Islands; and the ocean waters surrounding Puerto Rico and The Virgin Islands.

Exercises within the land boundaries of Training Area 8 include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area. A permanent ground based terminal is located on St. Thomas, Virgin Islands. Other permanent ground based terminals will be added as required. Specific sites within Area 8 include, but are not limited to, the Armed Forces Weapons Test Facility and the Navy Reservation, Vieques Island.

Exercises in the Atlantic Ocean and Caribbean Ocean waters will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere. The waters of the Armed Forces Weapons Test Facility are included.

CEC TRAINING AREA 9

Training Area 9 supports Atlantic Coast exercises. Training Area 9 extends inland from, seaward from, and along the low water mark of a portion of the South Carolina (SC) and Georgia (GA) Atlantic coastlines, and includes a separate area in the Jacksonville, FL metropolitan area.

INLAND PORTION: The inland portion of Training Area 9 extends westward from the low water mark of the Atlantic Ocean, and includes all of the areas contained within the boundaries of the following counties and facilities in the indicated state:

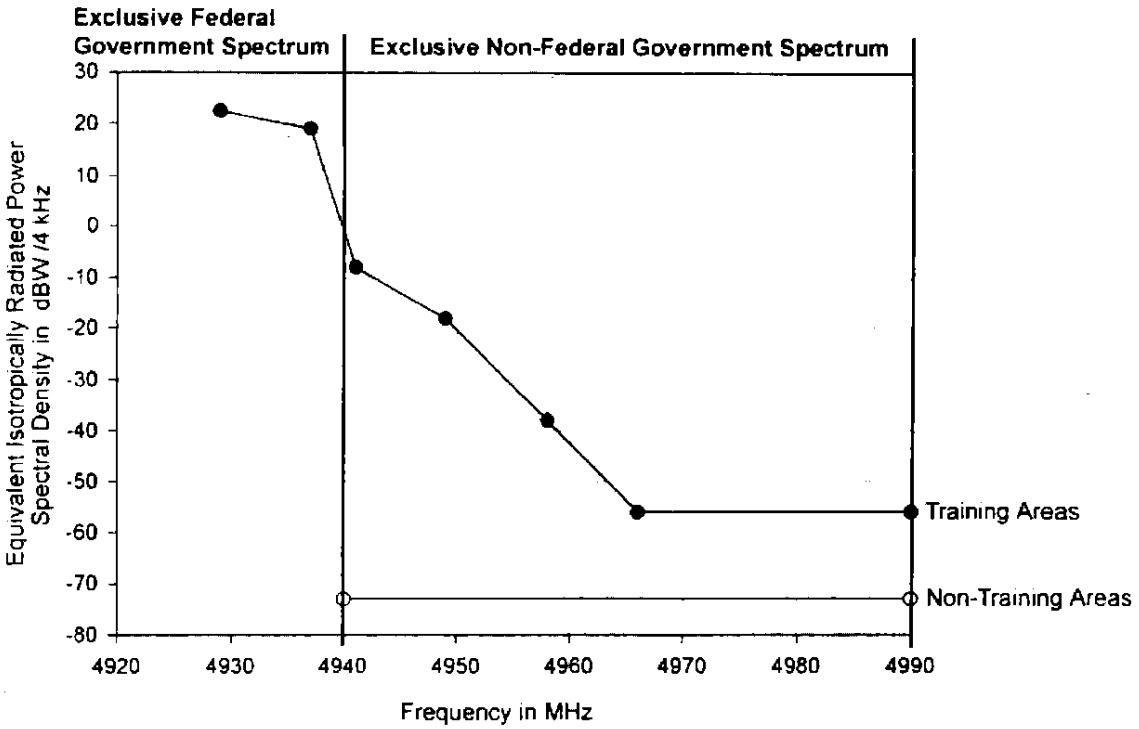
South Carolina: Beaufort and Jasper Counties
Georgia: Chatham, Bryan, Liberty, Long, and McIntosh Counties; Ft. Stewart U.S. Army Facility

Exercises within the boundaries of the inland portion of Training Area 9 will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area defined above. Permanent ground based terminals will be added within the above defined area as required. Specific sites within the above defined area include, but are not limited to, Beaufort MCAS, SC; Wright Army Air Field, GA; and Hunter Army Air Field, GA. All of the area within the legal boundaries of Ft. Stewart U.S. Army Facility, GA is included.

Training Area 9 also includes the Jacksonville, FL metropolitan area. Mobile and ground based equipment will be located anywhere within the legal boundaries of the Jacksonville NAS, FL. Mobile, ground based, and ship based equipment will be located anywhere within the legal boundaries of the Mayport Naval Station, FL. Aircraft operating in the vicinity of Jacksonville, FL will maintain emissions at the lower defined level.

SEAWARD PORTION: The seaward portion of Training Area 9 is bounded on the north by the line that extends eastward from the low water mark of the Atlantic Ocean along 32.480000 north decimal degrees of latitude. The western boundary of the seaward portion of Training Area 9 begins at the intersection of the low water mark of the Atlantic Ocean with 32.480000 north decimal degrees of latitude, extends generally southward and southwestward along the low water mark of the Atlantic Ocean to the intersection of the low water mark with 31.370000 north decimal degrees of latitude. The seaward portion of Training Area 9 is bounded on the south by the line that extends eastward from the low water mark of the Atlantic Ocean along 31.370000 north decimal degrees of latitude. There is no eastern boundary of the seaward portion of Training Area 9. Exercises in the seaward portion of Training Area 9 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC EMISSIONS ACROSS THE 4940-4990 MHz BAND



APPENDIX D: List of Commenters

Comments

Association of American Railroads
Association of Public Safety Communications Officials International, Inc.
Atheros Communications, Inc.
Chicago Emergency Management and Communications
Chicago Municipal Water Agency
Cinergy Corporation & Consumers Energy Company
District of Columbia Government, Office of the Chief Technology Officer
Illinois Fire Chiefs Association
International Association of Chiefs of Police, Major Cities Chiefs Association, National Sheriffs' Association, Major County Sheriffs' Association
International Association of Fire Chiefs, Inc. and International Municipal Signal Association
Microwave Radio Communications
Motorola, Inc.
National Academy of Sciences' Committee on Radio Frequencies
National Public Safety Telecommunications Council
National Radio Astronomy Observatory
New York, City of
New York City Transit Authority
New York State Office for Technology, Statewide Wireless Network
Phoenix, Arizona, City of
Public Safety Wireless Network
United Telecom Council
Warren C. Havens & Telesaurus Holdings GB, LLC
Wireless Ethernet Compatibility Alliance

Reply Comments

Association of Public Safety Communications Officials International, Inc.
District of Columbia Government, Office of the Chief Technology Officer
Industrial Telecommunications Association, Inc.
Motorola, Inc.
Public Safety Wireless Network (PSWN)
United Telecom Council (UTC)
Warren C. Havens & Telesaurus Holdings GB, LLC

Ex Parte or Late filed Comments

Association of Public Safety Communications Officials International, Inc.
Los Angeles County Sheriff's Department
Microwave Radio Communications
Motorola, Inc.
Society of Broadcast Engineers
United Telecom Council (UTC)
Warren C. Havens & Telesaurus Holdings GB, LLC

SEPARATE STATEMENT OF CHAIRMAN MICHAEL K. POWELL

Re: The 4.9 GHz Band Transferred from Federal Government Use, Memorandum Opinion and Order and Third Report and Order, WT Docket No. 00-32

The service rules we adopt today provide an important broadband opportunity for public safety and homeland security. The Order makes available for licensing 50 MHz of spectrum that may be used for a variety of innovative applications, including the delivery of real time video from inside burning buildings, floor plans to police officers entering a hostile environment, and even videos from robots entering a collapsed mineshaft. Moreover, consistent with our continuing efforts to increase licensee flexibility, the rules we adopt afford state and local government licensees with the freedom to design flexible and innovative partnerships between the public and private sectors to facilitate deployment. In these difficult economic times for our first responders, this flexibility may be essential to building the infrastructure and developing the necessary equipment to deliver these new broadband applications. I urge state and local governments to work with one another and the critical infrastructure community to utilize fully this new spectrum opportunity to make all Americans safer.

SEPARATE STATEMENT OF
COMMISSIONER MICHAEL J. COPPS
Approving in Part, Concurring in Part

Re: The 4.9 GHz Band Transferred from Federal Government Use, Memorandum Opinion and Order and Third Report and Order, WT Docket No. 00-32

I am in strong support of establishing licensing and service rules for the 4.9 GHz band, and I believe that our action today will give public safety professionals across the country access to new spectrum and will further the trend of putting cutting-edge communications technologies to use in saving lives. I look forward to the development of new products designed to use the 4.9 GHz band. I commend the public safety community for pushing the Commission to take today's action and the bureaus for seeing the challenge through.

We have all been working to facilitate the ability of police departments, fire departments and utilities companies to interact using wireless technologies. Communications between these entities is, as we all understand now, critical in times of emergency. The 4.9 GHz band has the potential significantly to improve such communications, especially by allowing government public safety organizations to access utility companies' public safety oriented communications and monitoring activities.

I concur in part, however, because I am concerned that the Commission may at the same time be creating a bit of confusion and perhaps even future disputes by failing to protect against possible misuse of this band by private companies for non-public safety activities. We need to be vigilant to make sure this does not happen.

The way I read it, today's Order establishes a system whereby government users can enter into agreements to grant private companies access to public safety spectrum, for free, without adequate restrictions on how these private companies can use the spectrum.

While all operations in the band are supposed to be "limited to operations in support of public safety," the types of activities that are "in support of public safety" are not defined. The term "public safety services" ***is*** defined, but very broadly -- any service with the "principal purpose" of "protecting life, health, or property" is covered. Additionally, the text allows all types of private companies that are not utilities or in other public-safety oriented businesses to access the spectrum. That presumably means that 49% of a company's use of the band could be generally unrelated to public safety, and 51% could be used to protect the company's private facilities. If this result is indeed possible, I would have to ask: is this really the best use of our public safety spectrum?

I am somewhat reassured by the item, however, because a public safety entity must grant a private company permission before any of this can occur, and I believe that utilities companies are dedicated to public safety. So, most police departments and fire departments will not allow their 4.9 GHz spectrum to be used for inappropriate activities. And utility companies across the country are generally very dedicated to protecting public safety and often go beyond the call of duty to make their communities safer. Responsible companies will not take advantage of any vulnerabilities that might exist.

But we went through a similar experience with ITFS. Even though the majority of licensees use the spectrum with which we entrust them well, when the Commission leaves open the opportunity for abuse, there will be some who will take advantage of it. Just as every school did not use its ITFS spectrum responsibly, every public safety entity will not be an effective filter for misuse.

As I mentioned, nothing in our rules appears to restrict the private companies that can use this band to utility companies. So companies far less public safety oriented than utilities may be able to strike deals to use the spectrum for their own ends. And our "in support of public safety" language is overly porous. We must not allow any kind of abuse to undermine the promise of the 4.9 GHz band for the public safety activities of both governments and utilities.

Closing on a more positive note, I believe the item is generally a significant step forward in the Commission's ongoing efforts to enhance public safety throughout the land, and I thank the bureaus for bringing it to us this morning.

SEPARATE STATEMENT OF COMMISSIONER KEVIN J. MARTIN

Re: The 4.9 GHz Band Transferred from Federal Government Use, Memorandum Opinion and Order and Third Report and Order, WT Docket No. 00-32

I am pleased to support this item, which establishes licensing and service rules for public safety use of the 4940-4990 MHz band (4.9 GHz band). This item responds to public safety's need for spectrum dedicated to high-speed data transmission. Numerous state, county, local government, and national public safety associations argued persuasively that use of the 4.9 GHz band for high-speed data transmission will enable responders to carry out critical missions in a way that ensures more effective service to their communities and provides a safer environment for emergency responders. In today's item, we adopt licensing and service rules to promote those goals.

The rules we adopt are intended to accommodate a variety of new public safety broadband applications, such as high speed on-site file transfers and specialized headsets equipped with video cameras and environmental sensors. For example, emergency personnel can use this spectrum to have instant access to maps, building layouts, emergency medical service files, and wanted or missing person images. Our rules also allow each user to have maximum autonomy to use the spectrum as suits its particular needs. Users in rural areas thus may choose to use the spectrum to cover larger distances, while users in cities may have a greater need for mobile and "hot spot" uses.

I am hopeful that the rules we adopt will help public safety personnel – which include law enforcement, fire fighters, SWAT teams, bomb squads, emergency medical providers, and others – carry out their missions in as safe and effective a manner as possible. These people, who must risk their lives to protect our own lives and property, deserve nothing less.